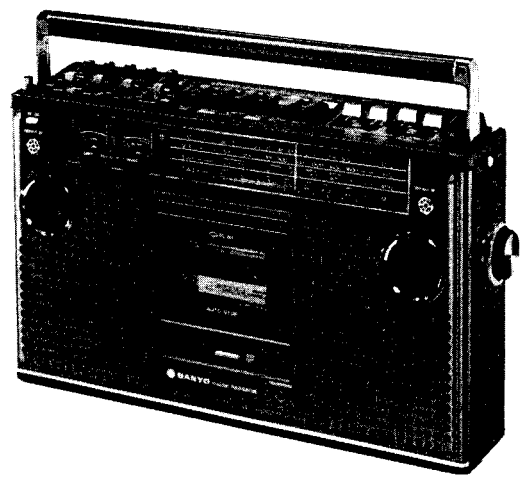
SANYO

SANYO
PORTABLE RADIO
CASSETTE RECORDER
M9980LU
SERVICE MANUAL



A PRODUCT OF SANYO ELECTRIC CO. LTD.

SPECIFICATIONS

Recording System	AC Bias, 1/4 Track Stereo		
Erasing	AC Erase		
Tape Speed	1-7/8 ips. (4.75 cm/s)		
Rewind & Fast Forward Time	1'30" (C-60)		
Wow & Flutter	0.3% RMS.		
Signal to Noise Ratio..	45dB		
Frequency Range & Sensitivity ..... (Maximum)	MW :	530 – 1,605 KHz	Limit 200μV/m
	FM :	87.5 – 108 MHz	10μV
	LW :	150 – 350kHz	500μV/m
	SW :	5.95 – 18 MHz	50μV
Terminal Impedance	EXT. MIC :	1K ohms	
	REC/PB :	(Input) 1K ohms	
	:	(Output) 2.6K ohms	
	EXT. SP :	4 ohms	
	HEADPHONES :	8 ohms	
FM MPX Separation ..	30dB Limit (at 1kHz)		
Output Power	2.0W x 2		
Frequency Response...	CrO :	60 – 12,000 Hz	
	Normal :	60 – 10,000 Hz	
Power Source	DC :	9V D cell x 6	
	AC :	115/230V 50/60Hz	
Dimensions	16-1/2" (W) x 4-11/32" (D) x 10-11/32" (H) (418 x 110 x 262 mm)		
Weight	Approx. 11 lbs. 11 ozs. (5.3 kg) inclusing batteries		

ADJUSTMENT OF PINCH ROLLER

1. Set the unit to the PLAY mode.
2. Apply a tension gauge to the pinch roller. Read the gauge at the precise moment when the pinch roller separates from the capstan.
3. If the gauge reading is within a range of 450 – 650g, no adjustment is necessary. If otherwide, make adjustment by changing the force of the spring coil. (See exploded view No. 24)

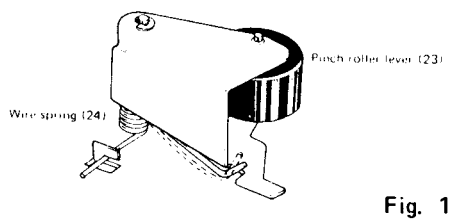


Fig. 1

TORQUE ADJUSTMENT

1. Set the unit to the PLAY, FAST FORWARD or REWIND mode.
2. Measure the each torque with a torque gauge. They should be as following;

PLAY	30 – 60g/cm
FAST FORWARD	60 – 110g/cm
REWIND	60 – 110g/cm

3. If the each torque fails to reach the standard value. Clean the drive belt, flywheel, motor pulley, take-up reel, idler and rewind roller with a cotton swab soaked in alcohol.

ADJUSTMENT OF HEAD AZIMUTH

1. Connect the unit to a power source and insert a test cassette tape (6.3K Hz pre-recorded) in the cassette compartment.
2. Connect an 8 ohm dummy load with the VTVM across it to the EXT. SP jack on the unit.
3. Set the unit into the PLAY mode.
4. Turn the head azimuth adjusting screw for the maximum value reading on the VTVM.
5. Fasten the adjusting screw securely by applying paint or glue.

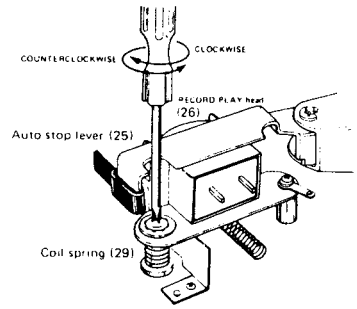


Fig. 2

AUTO-STOP ADJUSTMENT

Measure the senser pressure with a tension gauge with the unit set in the playback mode. The unit should be shut off when the senser pressure stand within a range of 30 to 55 grams. (Fig. 3)
If the shut-off mechanism fails to function at a senser pressure of 30 to 55 grams, adjust the spring coil (Mechanism No. 73).

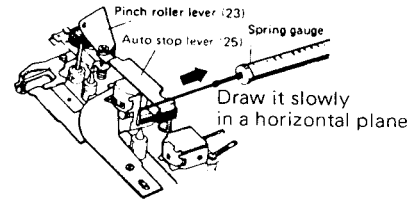


Fig. 3

METHODS OF ADJUSTING AMPLIFIER

Conditions: Voltage is DC 9V (current capacity is more than 1.5A). Set VOLUME CONTROL KNOB at MAX, TONE CONTROL KNOB (BASS/TREBLE) at neutral, MICROPHONE ATTENUATOR SWITCH at OFF, MODE SWITCH at STEREO and TAPE SWITCH at NORMAL.

1. Trap Adjustment

Connect Vacuum Tube Voltmeter (VTVM) between test point (Fig. 4) and ground (frame of R/P switch). Adjust by turning the core of trap coil (L701 and L801) until the swing of the vacuum tube voltmeter becomes minimum.
Select the beat-cancel switch, and if the swing the VTVM does not vary more than 3dB, the adjustment is completed. If it varies more than 3dB, readjust the trap coil by turning the beat-cancel switch until output variations of both come within 3dB.

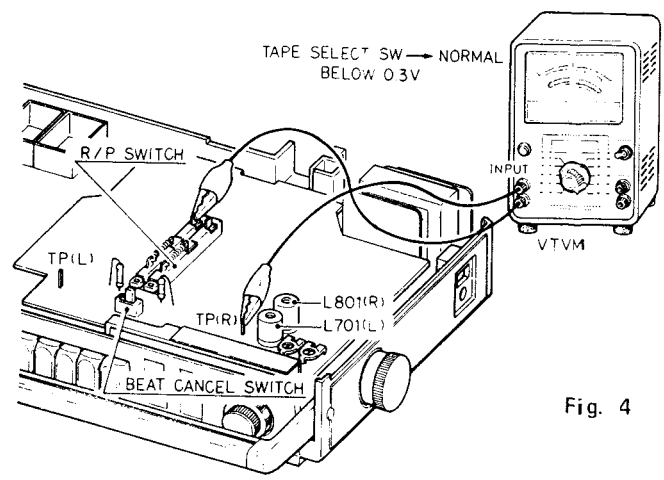
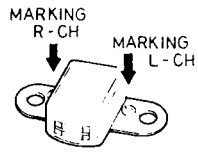


Fig. 4

2. Bias Adjustment

Connect VTVM between 10Ω (R705 and R805) and ground (frame of R/P switch). (Fig. 5) Adjust the output of the VTVM by turning SVR701 and SVR801 according to the color marking for bias rank of recording head (R/P head). Tape switch is NORMAL.

Marking	Bias current
Purple Green	450μA (4.5mV)
Black Red Colorless	500μA (5.0mV)
Blue Brown	600μA (6.0mV)



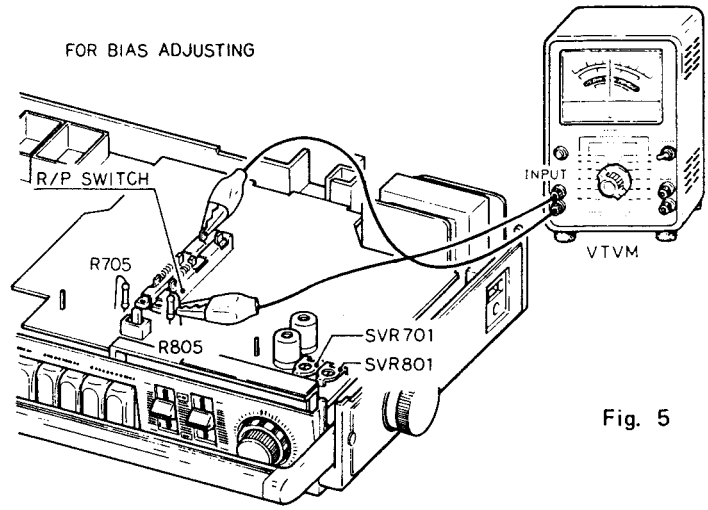


Fig. 5

GAIN ADJUSTMENT

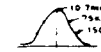
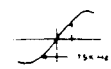
Play back a 1 KHz 0dB test tape and adjust SVR-702 until the LINE OUT levels become identical for the left and right channels.

METER ADJUSTMENT

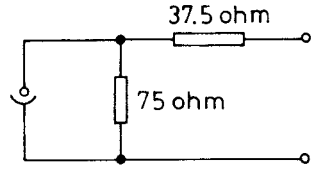
Play back a 1 KHz 0 dB test tape and adjust SVR-703 until the meters for the left and right channels swing in unison.

TUNER ADJUSTMENT

FM ADJUSTMENT

Step	Adjusting Circuit	Connection		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.	Connect sweep generator to FM ANT. Terminals.	Connect oscilloscope to test point	10.7 MHz (0% modulation)	Near max. capacity of VC. at no signal position.	T301, T302	
2	Ratio Det.		Connect oscilloscope to test point			T303	
3	O.S.C.	Connect FM SG. to FM ANT. Terminals.	Connect VTVM to speaker terminal.	87MHz (400Hz 30% modulation)	Low end of dial scale	L106	MAX.
4				109.0MHz (400 Hz 30% modulation)	High end of dial scale	VCT1-2	
5	ANT.	Connect FM SG. to FM ANT. Terminals.	Connect VTVM to speaker terminal.	90MHz (400Hz 30% modulation)	90 MHz on dial scale	L104	MAX.
6				106 MHz (400 Hz 30% modulation)	106 MHz on dial scale	VCT1-1	
7	Repeat adjustments.						

PREPARE: 1. Use an FM antenna dummy like the one shown below.
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, FM SG, VTVM and oscilloscope. FM antenna input impedance is 75 ohm.
4. Use a screwdriver with plastic grip for all adjustments.



NOTE: Tune to the center frequency of the ceramic filter when adjusting the IF stage.

TUNER ADJUSTMENT

MW ALIGNMENT

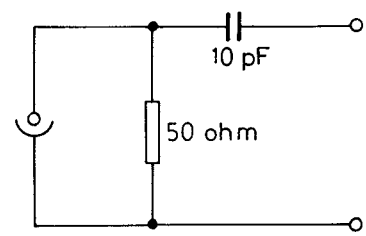
Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	I.F.T.	Connect sweep generator to Test Loop.	Connect oscilloscope to EXT. SP terminals	460 KHz (400 Hz 30% modulation)	Low end of dial scale. At position of unrequired signal.	T304, T305 T306, T307	Max.
2	O. S. C.	Connect AM SG to Test Loop.	Connect VTVM to speaker terminals.	505 KHz (400 Hz 30% modulation)	Low end of dial scale	L113	Max.
3				1650 KHz (400 Hz 30% modulation)	High end of dial scale	VCT2-2	
4	ANT.	Connect AM SG to Test Loop.	Connect VTVM to speaker terminals.	600 KHz (400 Hz 30% modulation)	600 KHz on dial scale	L110a	Max.
5				1400 KHz (400 Hz 30% modulation)	1400 KHz on dial scale	CT2	
6	Repeat adjustments.						

PREPARE: 1. When adjusting tracking, use a dummy rear cover.
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, AM SG, VTVM and oscilloscope.
4. Selector switch to "MW".
5. Use a screwdriver with plastic grip for all adjustments.

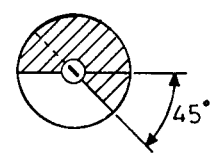
SW ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	O.S.C.	Connect AM SG to ANT terminal through IRE dummy.	Connect VTVM to EXT. SP. terminals.	5.8 MHz (400 Hz 30% modulation)	Low end of dial scale.	L112	Max.
2				19.0MHz (400 Hz 30% modulation)	High end of dial scale.	VCT2-1	
3	ANT.	Connect AM SG. to ANT terminal through IRE dummy.	Connect VTVM to EXT. SP. terminals.	7.0 MHz (400 Hz 30% modulation)	7.0 MHz on dial scale.	L107	Max.
4				18.0 MHz (400 Hz 30% modulation)	18.0 MHz on dial scale.	CT3	
5	Repeat adjustments.						

PREPARE: 1. Use an IRE antenna dummy like the one shown at right.
2. Set the dial pointer to very left line dial scale.
3. Connect signal generator to dummy antenna.
4. Use screw driver with plastic grip for all adjustments.
5. Selector switch to "SW".



NOTE: When making tracking adjustment, set CT-3 as shown at right and do not pull out the trimmer. Do trading while making fine adjustment.



TUNER ADJUSTMENT

LW ALIGNMENT

Step	Adjusting Circuit	Connections		SG frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope
		Input	Output				
1	O.S.C.	Connect AM SG to Test Loop.	Connect VTVM to speaker terminals.	145 KHz (400 Hz 30% modulation)	Low end of dial scale.	L115	Max.
2				365 KHz (400 Hz 30% modulation)	High end of dial scale.	CT 4	
3	ANT.	Connect AM SG. to Test Loop.	Connect VTVM to speaker terminals.	160 KHz (400 Hz 30% modulation)	160 KHz on dial scale.	L110b	Max.
4				340 KHz (400 Hz 30% modulation)	340 KHz on dial scale.	CT 1	
5	Repeat adjustments.						

When adjusting tracking, use a dummy rear cover.

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
PACKING			
	141-6-132T-67802	Individual Carton	1
	141-6-144T-30300	Styrol Filler, Right Side	1
	141-6-144T-30400	Styrol Filler, Left Side	1
	123-6-453R-00100	Inspection Sheet	2
	141-6-411T-79401	Instruction Booklet	1
		Polyethylene Bag 400x600mm, Set	1
		Polyethylene Bag 200x350mm, Printed Matter	1
	141-6-472T-05602	Caution Label, Voltage Select	1
	141-2-176T-06100	Band	1
	141-6-415T-14200	Notice, Swedish	1
ACCESSORIES			
	4-241T-04971	Cassette Tape C-12 Blank	1
	4-243T-77900	Power Supply Cord	1
CABINET			
	141-0-111T-276916	Cabinet Assembly	1
	141-0-124T-12991	Top Lid Assembly	1
	141-2-372T-03100	Bracket, Speaker Mtg.	6
	141-2-472T-05700	Lug, Rod Antenna	1
	141-0-126T-175916	Back Lid Assembly	1
	141-0-128T-09591	Battery Lid Assembly	1
	141-2-855T-06200	Coil Spring, Top Lid	2
	141-2-753T-01300	Shaft, Top Lid Fulcrum	1
	141-2-741T-78100	Lever, Eject	1
	141-2-367T-28700	Bracket, Headphone	1
	141-2-384T-00800	Bracket, Rod Antenna	1
	141-2-161T-28800	Push Button, Dial Light	1
	141-2-310T-01800	Bracket, Dial Light	1
	141-2-855T-02600	Coil Spring, Dial Light	1
	141-2-134T-07900	Head Cover	1
	141-2-132T-03800	Cover, Voltage Select	1
		Plastic Cushion 15x25x3mm	7
	141-2-157T-21100	Inlay, Except RECORD & PAUSE Button	4
	141-2-157T-21101	Inlay, RECORD Button	1
	141-2-157T-21200	Inlay, PAUSE Button	1
	141-2-445T-18400	Rubber Cushion, Microphone Mtg.	2
	141-2-853T-48100	Plate Spring, Microphone Mtg.	1
	141-2-164T-16100	Slide Knob, Tone & VOLUME	4
	141-2-163T-34000	Rotary Knob, Tuning	1
	141-2-163T-34100	Rotary Knob, Fine Tuning	1

Ref. No.	Part No.	Description	Q'ty
CHASSIS			
	141-0-311T-217911	Chassis Assembly	1
	141-0-566T-03400	Tuning Shaft Assembly	1
	141-2-851T-06300	Coil Spring, Dial Rope	1
	141-2-538T-03900	Drum	1
	141-2-425T-00200	Hexagon Screw, Drum Mtg.	1
		Dial Rope 0.5x1700mm	1
	141-2-146T-08204	Dial Scale	1
	141-2-245T-01400	Back Plate	1
	141-2-446T-05600	Plastic Cushion, Meter	2
	141-0-511T-02700	Pointer Assembly	1
	123-2-445R-01400	Cushion Ring, Pilot Lamp Mtg.	1
	141-0-747T-12791	Bracket Lever Assembly, Radio ON/OFF	1
	141-2-135T-44200A	Cover, Dial Scale	1
	141-2-853T-43400	Plate Spring, R/P Select	1
	141-2-731T-40500	Slide, Radio ON/OFF	1
	141-2-747T-04300	Bracket Slide, Radio ON/OFF	1
	141-2-241T-13200	Veil, Bias Switch	1
	141-2-322T-31101	Shield Plate, PT	1
	141-2-322T-32500	Shiled Plate, Motor Mtg.	1
	141-2-322T-32600	Shield Plate, AMP	1
		Fiber Sheet 13x22x0.3mm, Motor Shield Plate	1
	141-2-472T-05700	Lug, AMP Shield Plate	1
		Felt Cushion 10x10x5mm, TUNER to AMP P.C.B.	1
	141-6-479T-11800	Label, Fuse Holder Mtg.	1
	123-2-415R-00200	Hexagon Nut	1
ELECTRICAL PARTS			
	4-151T-19800	Speaker 4 ohm 12cm, Woofer	2
	4-151T-17800	Speaker 8 ohm 5cm, Tweeter	2
	4-251T-54900	Power Transformer 120/220V	1
	4-511T-07073A	Meter, VU/BATT.	1
	4-511T-07074A	Meter, VU/TUNE	1
	4-153T-09900	Condenser Microphone	2
C752,852	4-223T-04000	Capacitor 4.7μF ±20% 35WV Non-Polar, SP Mtg.	2
S301,302	4-231T-50700	Switch, Dial Lamp	1
	4-235T-26900	Socket, AC Input	1
	141-2-135T-32271	Cover, AC Socket	1
	4-235T-33074	Socket, Car Batt.	1
	4-612T-06974	Pilot Lamp	1
	4-235T-34600	Socket, Wrapper Pin	6
	4-235T-33200	Socket, Voltage Select	1
	4-236T-099910	Plug Assembly	1
	141-2-382T-03100	Terminal, PT Socket	3

Ref. No.	Part No.	Description	Q'ty
ELECTRICAL PARTS			
	141-2-464T-20671	Fixer, Lead Alignment	8
	4-244T-00900	Telescopic Rod Antenna	1
	123-2-472R-00400	Lug, Rod Antenna	4
	4-243T-12800	Lead Assembly, 100mm EXT.ANT	1
	4-235T-34600	Socket	1
	123-2-382R-00600	Terminal	1
	4-258T-13101A	OSC Pack	1
	141-2-382T-01500	Fuse Holder	1
	4-234T-05300 or 4-234T-03100	Fuse 1.25AT	1
	141-2-464T-21100	Fixer D type	2
	141-2-464T-21300	Fixer A type	1
P.C.B. ASSY, AMP			
	4-226T-996912	Printed Circuit Board Assembly, AMP	1
	4-235T-34701	Socket Assembly, Microphone & Remote	1
	4-235T-34800	Socket, DIN	1
	4-235T-35574	Socket, Condenser Microphone	1
S141–143 241–243	4-231T-51500	Switch, Radio ON/OFF	1
S101–108 201–208	4-231T-20901	Switch, R/P Select	2
S501–503	4-231R-15800	Switch, Beat Cancel	1
	141-2-382T-03000	Terminal	4
	4-237T-00100	Terminal, Wrapping	47
	4-235T-05571	Socket, EXT.SP & MIC. INPUT	3
L701,801	4-252T-02300	Choke Coil 15mH, Bias Trap	2
L702,802	4-252T-06700	Choke Coil 6.8mH	2
L901	4-252T-04700	Choke Coil 100μH, Motor Noise Filter	1
SVR701, 801	4-222T-39478	Semi Fixed Resistor 100KB, Bias Adjust	2
SVR702	4-222T-39578	Semi Fixed Resistor 100KB, Gain Adjust	1
SVR703	4-222T-39575	Semi Fixed Resistor 10KB, Meter Adjust	1
IC701,801		IC BA313	2
IC702,802		IC BA318	2
IC703,803		IC LA4102 KS	2
Q701,801		Transistor 2SC1571	2
Q702,802		Transistor 2SC536AUD	2
D701,702, 801,802		Diode 1S188 FM-1	4
D703,704, 803,804		Diode 1S188AM	4
D705,805		Diode DS442	2
D808		Diode MA26	1
D901		Diode DS131	1
D902		Diode DS132	1
		CAPACITORS	
C709,809		Ceramic 10pF ±10% 50WV	2
C703,803		Ceramic 70pF ±10% 50WV	2
C727,728, 731,746, 827,828, 831,846, 858,757		Ceramic 100pF ±10% 50WV	10
C705,805		Ceramic 150pF ±10% 50WV	2
C707,807		Ceramic 270pF ±20% 50WV	2
C704,804		Ceramic 560pF ±20% 50WV	2
C718,719, 743,818, 819,843, 758,858		Ceramic 0.001μF ±20% 50WV	8
C910,911, 912,913, 915		Ceramic 0.04μF +80 −20% 50WV	5
C754,854		Mylar 470pF ±20% 50WV	2
C712,812, 901		Mylar 0.0068μF ±10% 50WV	3
C748,848		Mylar 0.001μF ±20% 50WV	2
C702,802		Mylar 0.047μF ±20%, 50WV	2

Ref. No.	Part No.	Description	Q'ty
P.C.B. ASSY, AMP			
C711,715, 811,815		Mylar 0.01μF ±20% 50WV	4
C747,756, 847		Mylar 0.022μF ±20% 50WV	3
C750,850		Mylar 0.15μF ±20% 50WV	2
C701,729, 730,801, 829,830		Electrolytic 0.1μF +40 −20% 10WV	6
C710,810		Electrolytic 0.22μF +40 −20% 10WV	2
C714,725, 732,814, 825,832		Electrolytic 1μF 16WV	6
C706,716, 717,720, 726,741, 806,816, 817,820, 826,841		Electrolytic 2.2μF 25WV	12
C723,724, 823,824		Electrolytic 4.7μF 16WV	4
C722,822		Electrolytic 10μF 16WV	2
C713,813		Electrolytic 33μF 6.3WV	2
C745,845		Electrolytic 47μF 10WV	2
C721,821		Electrolytic 47μF 16WV	2
C744,844		Electrolytic 100μF 10WV	2
C755,855		Electrolytic 220μF 10WV	2
C742,749, 753,842, 849,853, 908		Electrolytic 220μF 16WV	7
C737,738, 837,838		Electrolytic 470μF 10WV	4
C751,851, 906,909		Electrolytic 1000μF 16WV	4
C907		Electrolytic 2200μF 16WV	1
		RESISTORS	
		All Resistors are Carbon P type ±10% 1/4W unless otherwise noted.	
R705,805		10 ohm	2
R906		15 ohm	1
R905		Solid type 39 ohm ±10% ½W	1
R722,822		100 ohm	2
R903		120 ohm	1
R904		150 ohm	1
R739,740, 839,840		220 ohm	4
R727,827		270 ohm	2
R733,833		390 ohm	2
R719,741, 819,841		470 ohm	4
R728,749, 849		680 ohm	3
R721,821		560 ohm	2
R701,713, 718,734, 750,801, 813,818, 834,850		1K ohm	10
R717,817		1.5K ohm	2
R732,832		1.8K ohm	2
R704,804		2.2K ohm	2
R729,730, 829,830		3.3K ohm	4
R703,723, 803,823		3.9K ohm	4
R714,814, 846		6.8K ohm	3
R709,710, 711,809, 810,811		10K ohm	6
R725,825		18K ohm	2
R724,824		33K ohm	2
R744,844, 845		39K ohm	3
R707,720, 807,820		56K ohm	4

PARTS LIST

Ref. No.	Part No.	Description	Q'ty
P.C.B. ASSY AMP			
R847		68K ohm	1
R706,806		100K ohm	2
R712,812		150K ohm	2
R751,851		330K ohm	2
R726,731, 826,831		680K ohm	4
P.C.B. ASSY, HEADPHONE			
	4-226T-891911	Printed Circuit Board Assembly, HEADPHONE	1
R742,842		Solid Type 47 ohm ±10% 1/2W	2
R743,843		Solid Type 220 ohm ±10% 1/2W	2
	4-235T-16201	Socket, Headphone	1
P.C.B. ASSY, VR			
	4-226T-89291	Printed Circuit Board Assembly, VR	1
VR701,702, 801,802	4-222T-46774	Variable Resistor 50KA x 2, Bass & Treble	2
VR703,803	4-222T-50800	Variable Resistor 50KB, Volume	2
		CAPACITORS	
C733,833		Mylar 0.01μF ±20% 50WV	2
C734,736, 834,836		Mylar 0.047μF ±20% 50WV	4
C740,840		Mylar 0.068μF ±20% 50WV	2
C735,835		Electrolytic 0.33μF +40 −20% 10WV	2
		RESISTORS	
R738,838		Carbon P Type 1.5K ohm ±10% 1/4W	2
R737,837		Carbon P Type 2.2K ohm ±10% 1/4W	2
R735,835		Carbon P Type 4.7K ohm ±10% 1/4W	2
R736,836		Carbon P Type 22K ohm ±10% 1/4W	2
P.C.B. ASSY, SW			
	4-226T-89391	Printed Circuit Board Assembly, SW	1
S151,152, 251	4-231T-475911	Switch Assembly, MODE	1
S121,122, 221,222, 131,231, 232	4-231T-476913	Switch Assembly, MIC & TAPE SELECT	2
C916		Ceramic Capacitor 100pF ±10% 50WV	1
R715,815		Carbon Resistor 12K ohm ±10% 1/4W	2
R716,816		Carbon Resistor 33K ohm ±10% 1/4W	2
P.C.B. ASSY, MIC			
	4-226T-99791	Printed Circuit Board Assembly, MIC	1
	4-236T-11074	Plug, Condenser Microphone	1
P.C.B. ASSY, LED			
	4-226T-934912	Printed Circuit Board Assembly, LED	1
D501		Light Emitting Diode SLP-24B, Red	1

*Ref. No.	Part No.	Description	Q'ty
P.C.B. ASSY, TUNER			
	4-226T-922912	Printed Circuit Board Assembly, TUNER	1
	123-2-445R-00200	Rubber Cushion	1
	141-2-322T-18900	Shield Plate, Up Side P.C.B.	2
	141-2-322T-18100	Shield Plate, Down Side P.C.B.	2
	141-2-369T-04200	Bracket, Antenna Holder	2
		Rubber Cushion 29x18x1mm, Antenna Holder	2
	123-2-955R-10200	Rubber Band, Antenna Holder	2
CF301,302	4-256T-80400, 4-256T-80471 / 4-256T-80474	I.F Filter 10.7MHz *Use a same rank	2
T501	4-255T-00900	Multiplex Coil 19KHz	1
T502	4-255T-01000	Multiplex Coil 38KHz	1
CR501,502	4-227T-01400, 4-227T-01410 or	CR Combination *Use a same number	2
SVR301	4-222T-41074	Semi Fixed Resistor 5KB, Meter Adjust	1
SVR501	4-222T-41072	Semi Fixed Resistor 1KB, MPX Adjust	1
S1-1 ~5-1 S1-2 ~5-2	4-231T-56591	Switch Assembly, Band Select & AFC	1
	123-2-474R-00200	Chip Plug	1
	123-2-382T-03000	Terminal	1
B101	123-2-471R-10900	Core	1
B102,103	123-2-471R-10400	Core	2
	4-237T-00100	Terminal	11
L101	4-265R-13100	V.H.F. Coil	1
L102	4-265R-11300	V.H.F. Coil	1
L103	4-265R-11800A	V.H.F. Coil	1
L104	4-265R-11600	V.H.F. Coil	1
L105	4-265R-05000A	V.H.F. Coil	1
L106	4-265R-12400	V.H.F. Coil	1
L107	4-257R-10730	Antenna Coil, SW	1
L108	4-253T-12900	R.F. Choke Coil 27μH	1
L109	4-253R-11160A	R.F Choke Coil 1μH	1
L110a,b	4-257T-19601A	Antenna Coil Assembly, MW LW	1
L112	4-258T-08340	OSC Coil, SW	1
L113	4-258T-05600	OSC Coil, MW	1
L115	4-258T-05540	OSC Coil, LW	1
L116	4-265R-11200	V.H.F. Coil	1
	4-224T-04600	Variable Capacitor, MW FM 20~335pF	1
CT1,CT4	4-224T-07300	Trimmer, Max 30pF	4
CT2,3	4-224R-11671	Trimmer, Max 10pF	2
T301	4-256T-05140	I.F.T, FM	1
T302	4-256T-04540	I.F.T, FM	1
T303	4-256T-04040	I.F.T, FM	1
T304	4-256T-04140	I.F.T, MW	1
T305,306	4-256T-05440	I.F.T, MW	2
T307	4-256T-03740	I.F.T, MW	1
IC501		IC LA3301s	1
Q101		Transistor 2SK49HI	1
Q102		Transistor 2SC668D, RF	1
Q103,104, 304		Transistor 2SC930D, CONV. & IF	3
Q301,302, 303		Transistor 2SC930E, IF	3
D101,102, 104,105, 106,108, 109		Diode DS442	7
D103		Diode 1S553	1
D301,302, 303,304		Diode 1S188AM	4
D305,306		Diode 1S188 FM-1	2
D307		Diode MV-11T	1
D308		Diode YZ-047	1

PARTS LIST

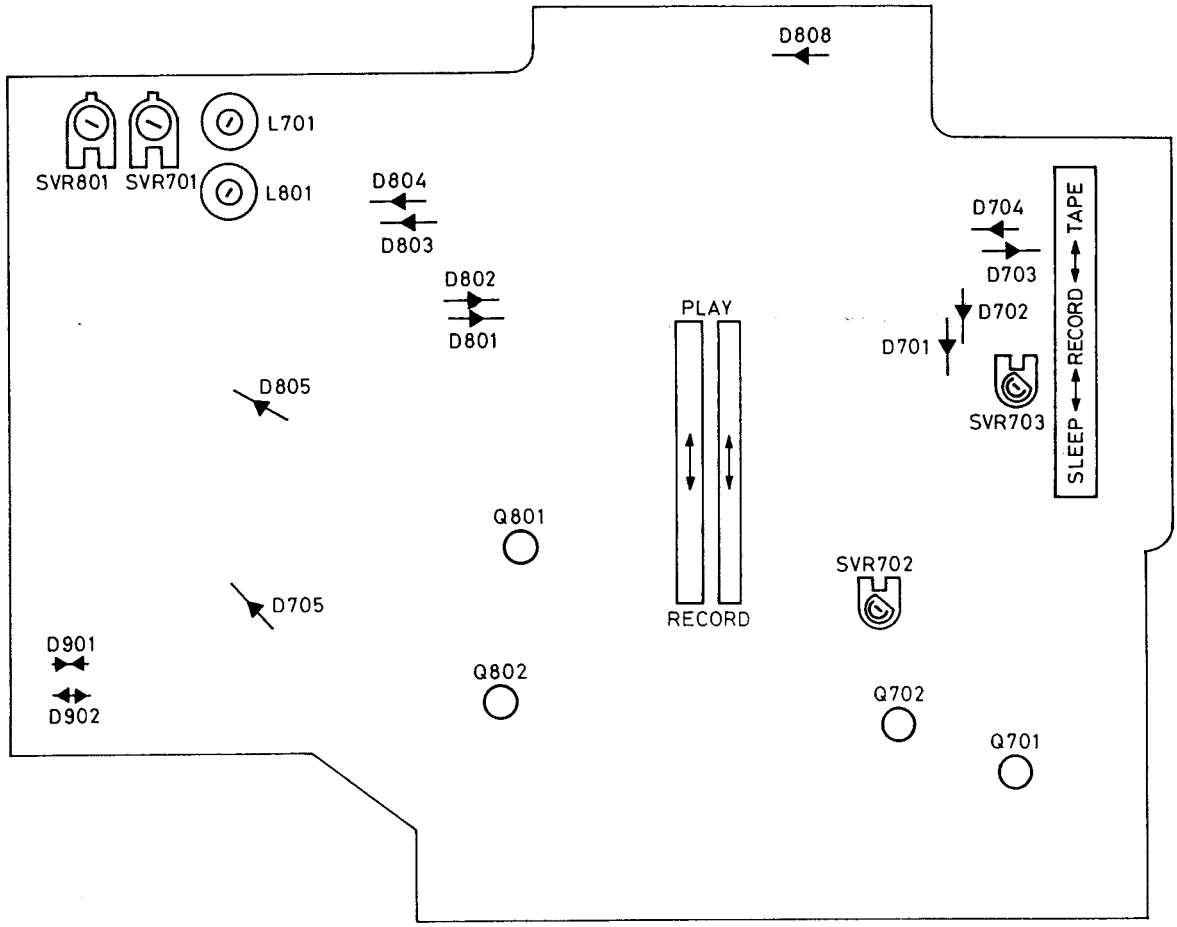
Ref. No.	Part No.	Description	Q'ty
P.C.B. ASSY TUNER			
		CAPACITORS	
C313		Ceramic 1pF ±0.25pF 50WV	1
C111,125, 141,302, 306		Ceramic 2pF ±0.25pF 50WV	5
C108		Ceramic 4pF ±0.25pF 50WV	1
C131		Ceramic 6pF ±0.5pF 50WV	1
C115,120, 140		Ceramic 7pF ±0.5pF 50WV	3
C133		Ceramic 7pF ±10% 50WV N1500	1
C101,123, 127,131, 324		Ceramic 10pF ±10% 50WV	5
C119		Ceramic 12pF ±0.5pF 50WV	1
C110		Ceramic 12pF ±10% 50WV	1
C102,104, 116,124		Ceramic 15pF ±10% 50WV	4
C103		Ceramic 25pF ±10% 50WV	1
C311		Ceramic 30pF ±10% 50WV	1
C314		Ceramic 33pF ±10% 50WV	1
C136		Ceramic 70pF ±5% 50WV	1
C312,335, 337		Ceramic 100pF ±20% 50WV	3
C112,316, 317,319, 509		Ceramic 220pF ±20% 50WV	5
C105		Ceramic 470pF ±20% 50WV	1
C113,301		Ceramic 0.001μF ±20% 50WV	2
C106,107, 109,114, 117,118, 303,305, 310,315, 322,325, 333		Ceramic 0.022μF +80 −20% 50WV	13
C307,321, 334		Ceramic 0.047μF +80 −20% 25WV	3
C121,122		Ceramic 0.047μF +80 −20% 50WV	2
C331		Mylar 470pF ±20% 50WV	1
C502		Mylar 0.0015μF ±20% 50WV	1
C304		Mylar 0.0022μF ±20% 50WV	1
C134		Mylar 0.0068μF ±20% 50WV	1
C126,132, 507,508		Mylar 0.0047μF ±20% 50WV	4
C128,129, 308,309		Mylar 0.01μF ±20% 50WV	4
C135,329		Mylar 0.022μF ±20% 50WV	2
C327		Mylar 0.039μF ±20% 50WV	1
C138		Styrol 180pF ±5% 50WV	1
C137		Styrol 350pF ±5% 50WV	1
C142		Styrol 3600pF ±5% 50WV	1
C336		Electrolytic 0.1μF ±20% 10WV	1
C326		Electrolytic 0.47μF ±20% 10WV	1
C318,503		Electrolytic 1μF +150 −10% 25WV	2
C322,505, 506		Electrolytic 4.7μF +150 −10% 25WV	3
C323		Electrolytic 10μF +100 −10% 16WV	1
C504		Electrolytic 220μF +100 −10% 10WV	1
C330		Electrolytic 470μF +100 −10% 6.3WV	1
C501		Electrolytic 470μF +100 −10% 10WV	1
		RESISTORS	
		All resistors are Carbon P type ±10% 1/4W unless otherwise noted.	
R122		5.6 ohm	1
R114,117		10 ohm	2
R301,305, 316,320		33 ohm	4

Ref. No.	Part No.	Description	Q'ty
P.C.B. ASSY TUNER			
R118,338		56 ohm	2
R105,111, 304,333, 506		100 ohm	5
R102,116, 322,507		220 ohm	4
R119,324		270 ohm	2
R318,331		330 ohm	2
R308		390 ohm	1
R302,501		470 ohm	2
R303,309, 310,323, 315,502		560 ohm	6
R503		820 ohm	1
R104,106, 123,306, 314,319, 325,326, 339		1K ohm	9
R115		1.2K ohm	1
R125,329, 504,512, 513		2.2K ohm	5
R508,509		3.3K ohm	2
R108,120, 121		3.9K ohm	3
R336		4.7K ohm	1
R112,327, 328		5.6K ohm	3
R510,511		6.8K ohm	2
R312		8.2K ohm	1
R124,313, 330		10K ohm	3
R103,107, 113,307, 317,321, 335,337, 340		15K ohm	9
R311		33K ohm	1
R109,110, 514		100K ohm	3
R126		150K ohm	1
R101		470K ohm	1
R334		1M ohm	1
SCREW MOUNTING			
		Pan Head Screw 2x6mm	1
		Pan Head Screw 2.6x4mm	2
		Pan Head Screw 2.6x6mm	3
		Pan Head Screw 3x4mm	1
		Tapping Screw 2.3 x 8mm	1
		Tapping Screw 3x6mm	2
		Tapping Screw 3x8mm	8
		Tapping Screw 3x12mm	2
		Tapping Screw 3x14mm	1
		Tapping Screw 3x16mm	1
		Tapping Screw 3x25mm	3
		Tapping Screw 3x30mm	4
		Tapping Screw 3x35mm	5
		Washer 2mm	1
		Washer 3mm	2
		Washer 3.3 x 8 x 0.5mm	2
		Pan Head Screw With Washer 3x16mm	2
		Tapping Screw 2.6x6mm	1
		Washer 3x10x1mm	2
		Regular Hexagon Bolt 3x6mm	1
		Nut 3mm	4
		Spring Washer 3mm	3
		External Tooth Lock Washer 3mm	1
		Tapping Screw With Washer 3x8mm	23

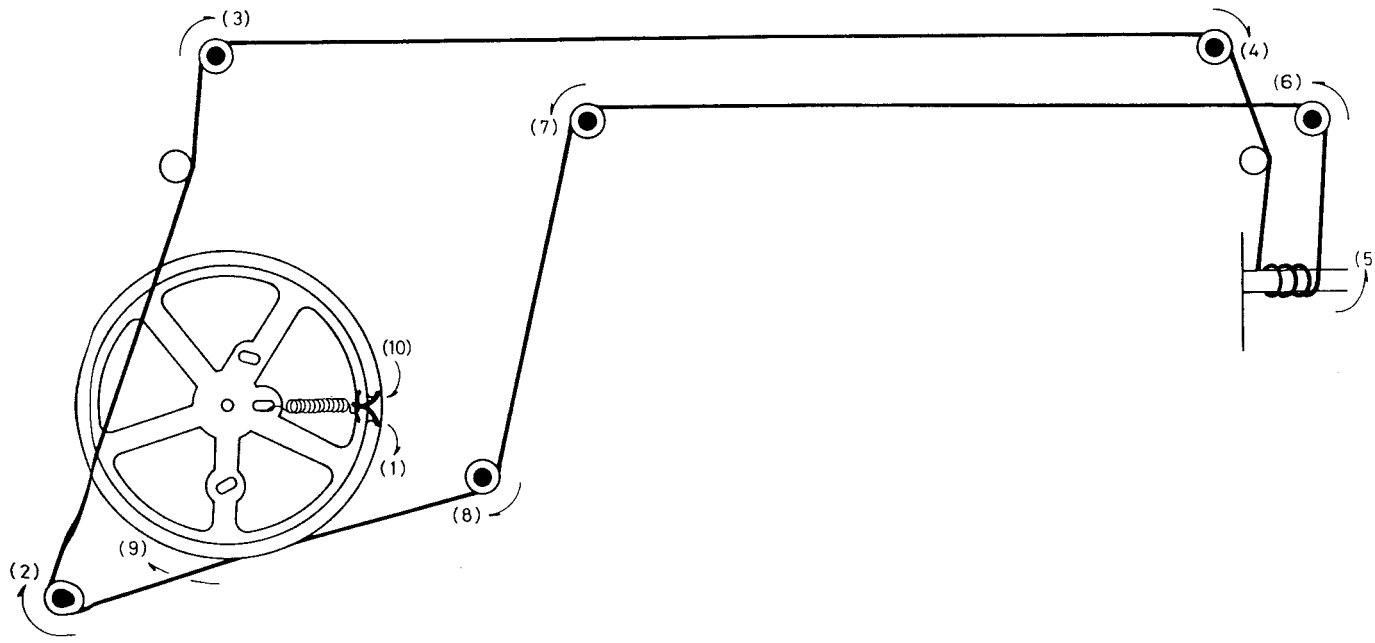
Ref. No.	Part No.	Description	Q'ty
MECHANISM			
1	141-0-311T-191911	Mechanism Chassis Assembly	1
2	141-2-853T-23400	Plate Spring, Cassette Pressure	1
3	4-231T-35002	Switch, Play	1
4	141-0-531T-044910	Reel Plate Assembly, Take Up	1
5	123-2-472R-00600	Lug, Ground Lead Fixer	1
6	141-0-531T-04300	Reel Plate Assembly, Supply	1
7	141-2-811T-03800	Counter	1
8	141-2-851T-62900	Coil Spring, Back Tension	1
9	141-2-564T-11000	Square Belt, Counter Drive	1
10	123-2-472R-00401	Lug, Motor Ground	1
11	4-527T-08300	DC Motor	1
12	141-0-661T-661910	Motor Pulley Assembly	1
13	141-2-378T-08100	Bracket, Motor Mtg.	1
14	141-2-421T-16000	Special Screw, Motor Mtg.	2
15	141-2-445T-11801	Rubber Cushion, Motor Mtg.	3
16	141-2-461T-26200	Pipe, Motor Mtg.	1
17	141-0-522T-05000 or 141-0-522T-05001	Flywheel Assembly	1
18	141-0-524T-02400	Bracket Assembly, Flywheel	1
19	141-2-457T-04300	Special Washer, Flywheel Mtg.	1
20	141-2-564T-15400	Main Belt	1
21	141-0-731T-10301	Slide Assembly, Head Slide	1
22	141-2-853T-38500	Plate Spring, Head Slide Pressure	1
23	141-0-545T-00700	Lever Assembly, Pinch Roller	1
24	141-2-852T-09400C	Wire Spring, Pinch Roller Pressure	1
25	141-0-721T-033911	Lever Assembly, Auto Stop	1
26	4-242T-20200	R/P Head	1
27	4-242T-18602	E Head	1
28	141-2-461T-17200A	Pipe, E Head Mtg.	1
29	141-2-851T-49700	Coil Spring, R/P Head Adjust	1
30	123-2-472R-00200	Lug, Head Ground	1
31	141-2-472T-02200	Lug, E Head Lead Fixer	2
32	141-2-851T-63100	Coil Spring, Play Slide Connection	1
33	141-0-741T-09401A	Lever Assembly, REW & F.FWD	1
34	141-0-741T-472910	Lever Assembly, F.FWD Roller	1
35	141-2-851T-63800	Coil Spring, Lever (34) Returning F.FWD Button Returning & Lever (37) Pressure	3
36	141-2-564T-13500	Square Belt, F.FWD & REW	1
37	141-0-741T-18000	Lever Assembly, Play Roller	1
38	141-2-851T-63900	Coil Spring, Record Button Returning	1
39	141-0-741T-15100	Lever Assembly, REW & F.FWD	1
40	4-231T-35002	Switch, REW & F.FWD	1
41	141-2-365T-27800A	Bracket, Switch (40) Mtg.	1
42	141-0-731T-09800	Slide Assembly, PAUSE Button	1
43	141-2-851T-55400	Coil Spring, Slide (42) Returning	1
44	141-2-731T-24800	Slide, REC Button	1
45	141-2-731T-34200B	Slide, REW Button	1
46	141-0-731T-05700	Slide,Assembly PLAY Button	1
47	141-2-851T-58700	Coil Spring, PLAY Button Returning	1
48	141-2-731T-34401	Slide, F.FWD Button	1
49	141-0-731T-05800A	Slide Assembly, STOP	1
50	141-2-741T-79700	Lever, Cassette Up	1
51	141-2-851T-56100	Coil Spring, Cassette Up Lever Returning Lever (49) Returning Lever (61)(63) Returning	4
52	123-2-472R-00400	Lug, Flywheel Lead Ground	1
53	141-2-683T-26000	Ring, CUE & REVIEW Slide	1
54	141-2-161T-24600	Push Button, Except PAUSE Button	5
55	141-2-161T-24700	Push Button, PAUSE Button	1
56	141-0-731T-00605	Slide Assembly, Lock Slide	1
57	141-2-851T-66400A	Coil Spring, Lever (72) Returning	1
58	141-2-741T-64100A	Lever, Safety Recording	1
59	141-2-851T-87701	Coil Spring, Lever (58) Returning	1
60	141-0-741T-477911	Lever Assembly, Brake	1
61	141-0-741T-15300	Lever Assembly, PAUSE	1
62	141-2-683T-25800A	Ring, Lever (61) Fixer	1
63	141-0-741T-15400A	Lever Assembly, Head Slide Operation	1
64	141-2-741T-72600	Lever, REW & F.FWD Switch	1
65	141-2-851T-28100	Coil Spring, Lever (64) Returning	1
66	141-2-164T-04700	Lever, PAUSE Lock	1
67	141-2-852T-27000	Wire Spring, Lever (66) Returning	1
68	141-0-737T-00400	Bracket Slide Assembly	1

Ref. No.	Part No.	Description	Q'ty
MECHANISM			
70	141-2-821T-10200	Tape Guide, R/P Head Mtg.	1
71	141-2-851T-73500	Coil Spring, STOP Button Returning	1
72	141-2-741T-47308	Lever, Auto Stop	1
73	141-2-851T-6400A	Coil Spring, Lock Slide (56) Returning	1
74	141-2-613T-03001	Frame, Push Button Guide Under Side Mtg.	1
75	141-2-613T-03101	Frame, Push Button Guide Upper Side Mtg.	1
80	141-2-851T-31500	Coil Spring, REW Button Returning	1
81	141-2-461T-24600 or 141-2-461T-24601	Pipe, Play Roller Mtg.	1
82	141-2-322T-27100	Shield Plate, Motor Mtg.	1
MECHANISM SCREWS			
Y1		Pan Head Screw 2x2mm	1
Y2		Pan Head Screw 2x6mm	2
Y3		Pan Head Screw 2x8mm	1
Y4		Psn Head Screw 2x12mm	2
Y5		Flat Head Screw 3x6mm	1
Y6		Tapping Screw 2.3x6mm	6
Y7		Tapping Screw 2.3x8mm	1
Y8		Tapping Screw 3x6mm	2
Y9		Tapping Screw 3x8mm	3
Y10		Tapping Screw 3x12mm	1
Y11		Tapping Screw 3x25mm	2
Y12		Flat Head Tapping Screw 3x6mm	1
Y13		Binding Head Tapping Screw 3x6mm	1
Y14		Washer 2.3x4.3x0.4mm	3
Y15		Washer 2.3x6x0.4mm	1
Y16		Washer 2.6x7.3x0.5mm	1
Y17		Washer 3x7.3x0.5mm	1
Y18		Washer 3x8x0.5mm	3
Y19		Washer 4x10x0.8mm	1
Y20		Spring Washer 2mm	3
Y21		Internal Tooth Lock Washer 2.6mm	1
Y22		External "E" Ring 1.5mm	2
Y23		External "E" Ring 2mm	3
Y24		External "E" Ring 4mm	1
Y25		Graphite Nylon Washer 2.1x4x0.13mm	1
Y26		Graphite Nylon Washer 2.1x4x0.25mm	2
Y27		Graphite Nylon Washer 2.1x8.5x0.25mm	1
Y28		Graphite Nylon Washer 2.6x4.7x0.25mm	1
Y29		Graphite Nylon Washer 2.6x4.7x0.5mm	1
Y30		Graphite Nylon Washer 5.2x8x0.5mm	1
Y31		Steel Ball 2φ	4
Y32		Fiber Washer 3x8x0.5mm	1
Y33		Tapping Screw With Washer 3x6mm	2
Y34		Tapping Screw With Washer 3x8mm	2
Y35		Tapping Screw With Washer 3x10mm	1
Y36		Pan Head Screw 2.6x12mm	1
Y37		Graphite Nylon Washer 5.2x8x0.13mm	1
Y38		Washer 2.3x7.8x0.5mm	2
Y39		Spring Washer 2.6mm	1
Y40		Graphite Nylon Washer 2.1x4x0.5mm	1
Y41		Washer 2.6x10 x0.5mm	1

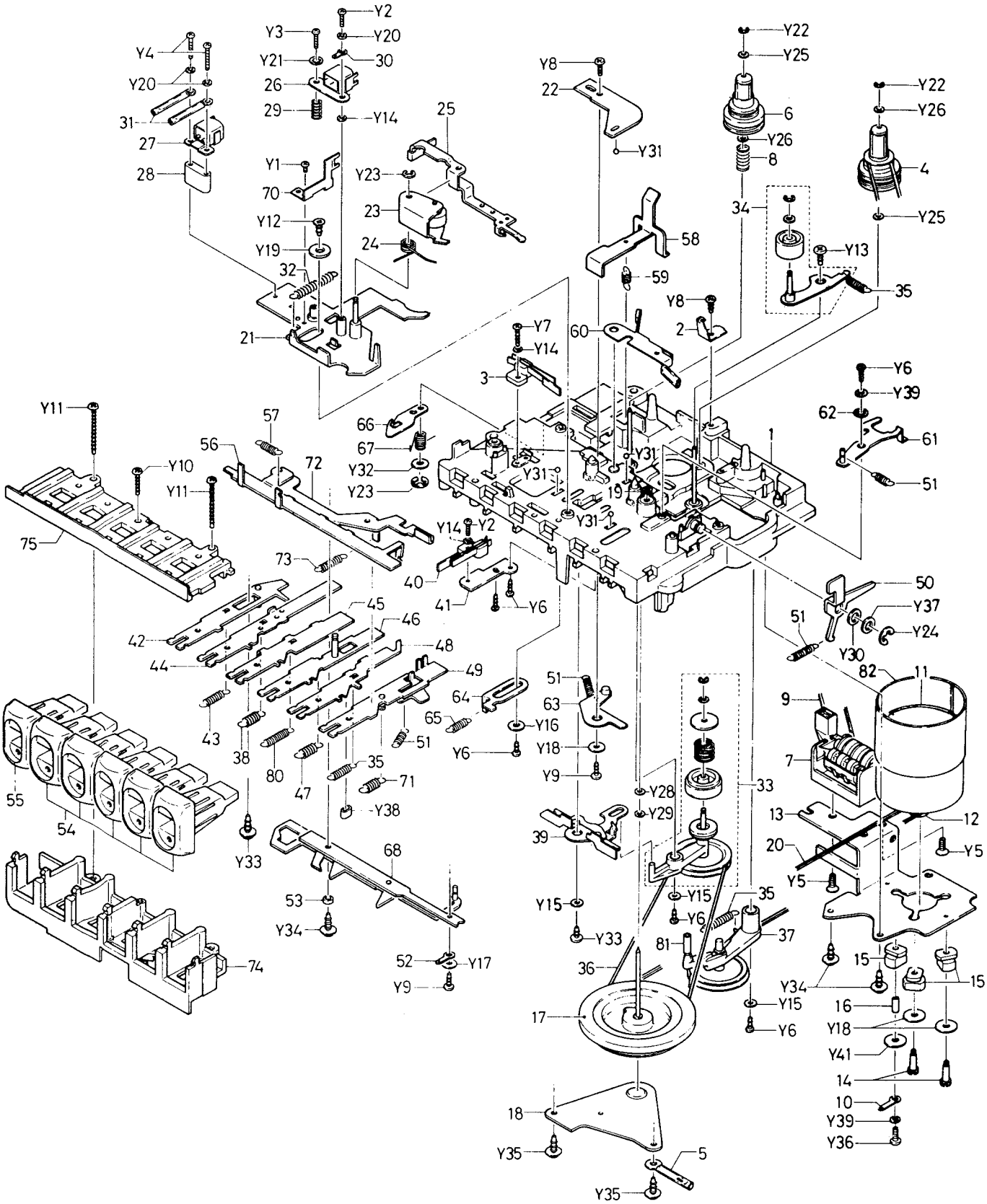
PARTS LOCATION (AMP)



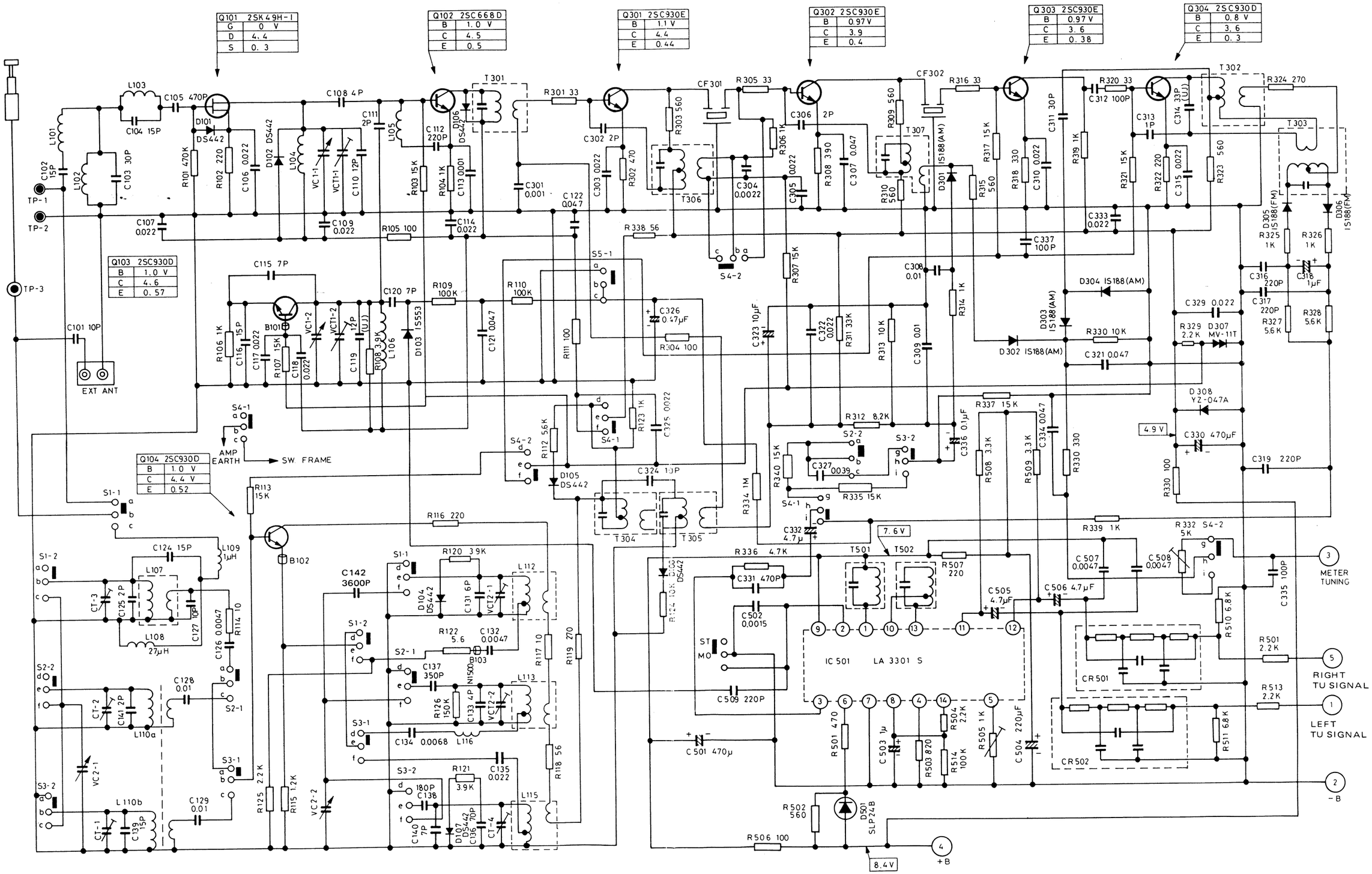
DIAL CORD STRINGING

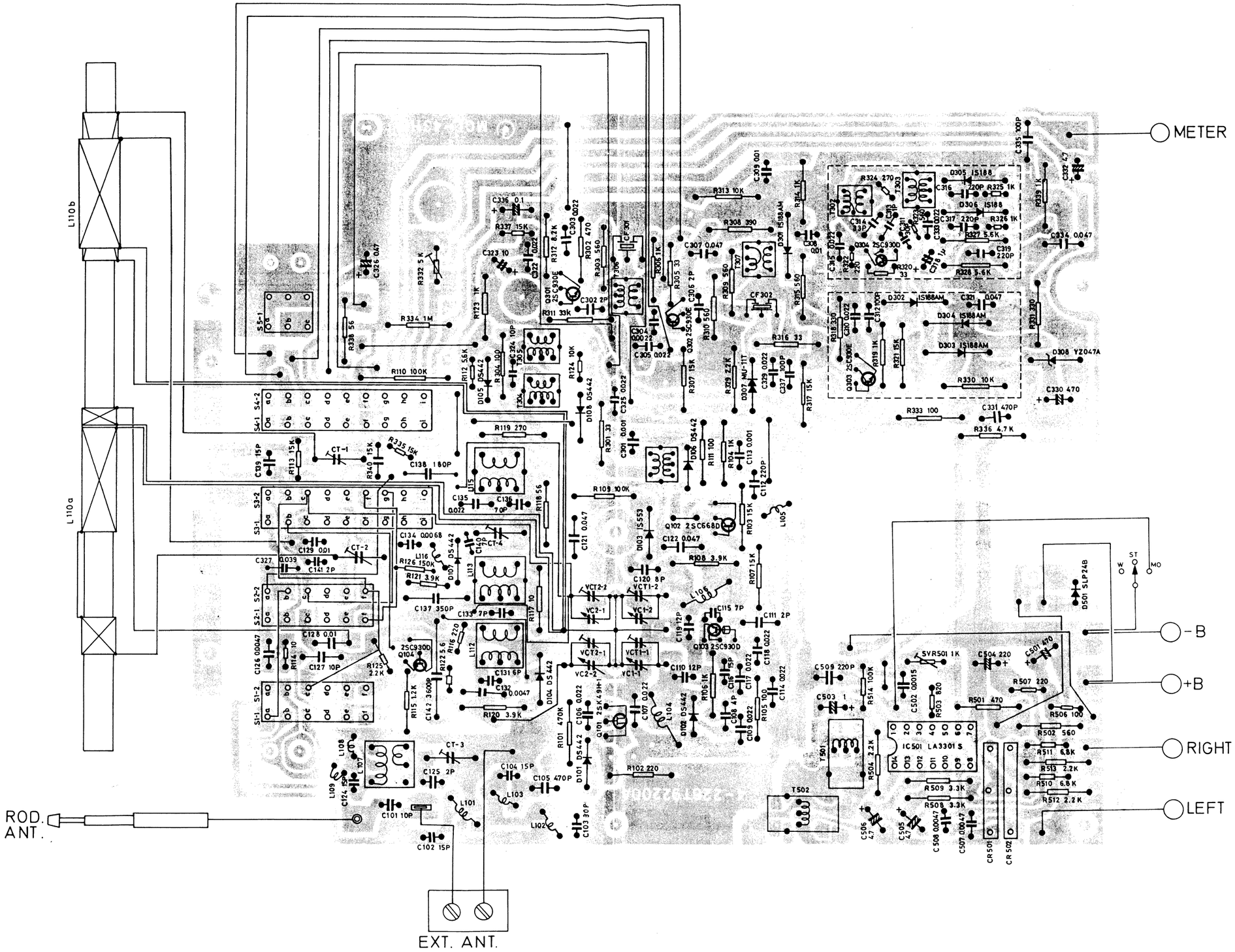


EXPLODED VIEW

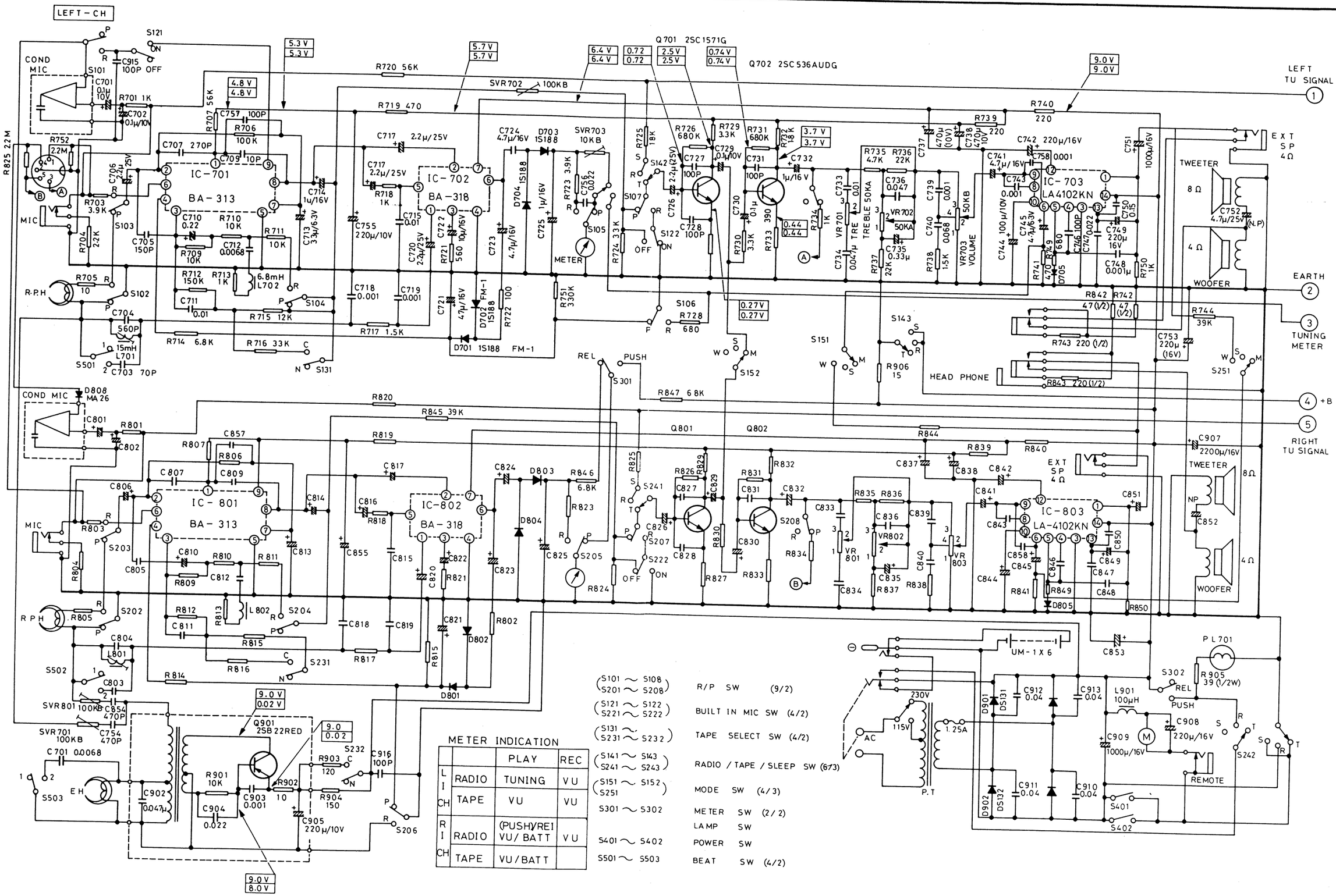


SCHEMATIC DIAGRAM (TUNER)



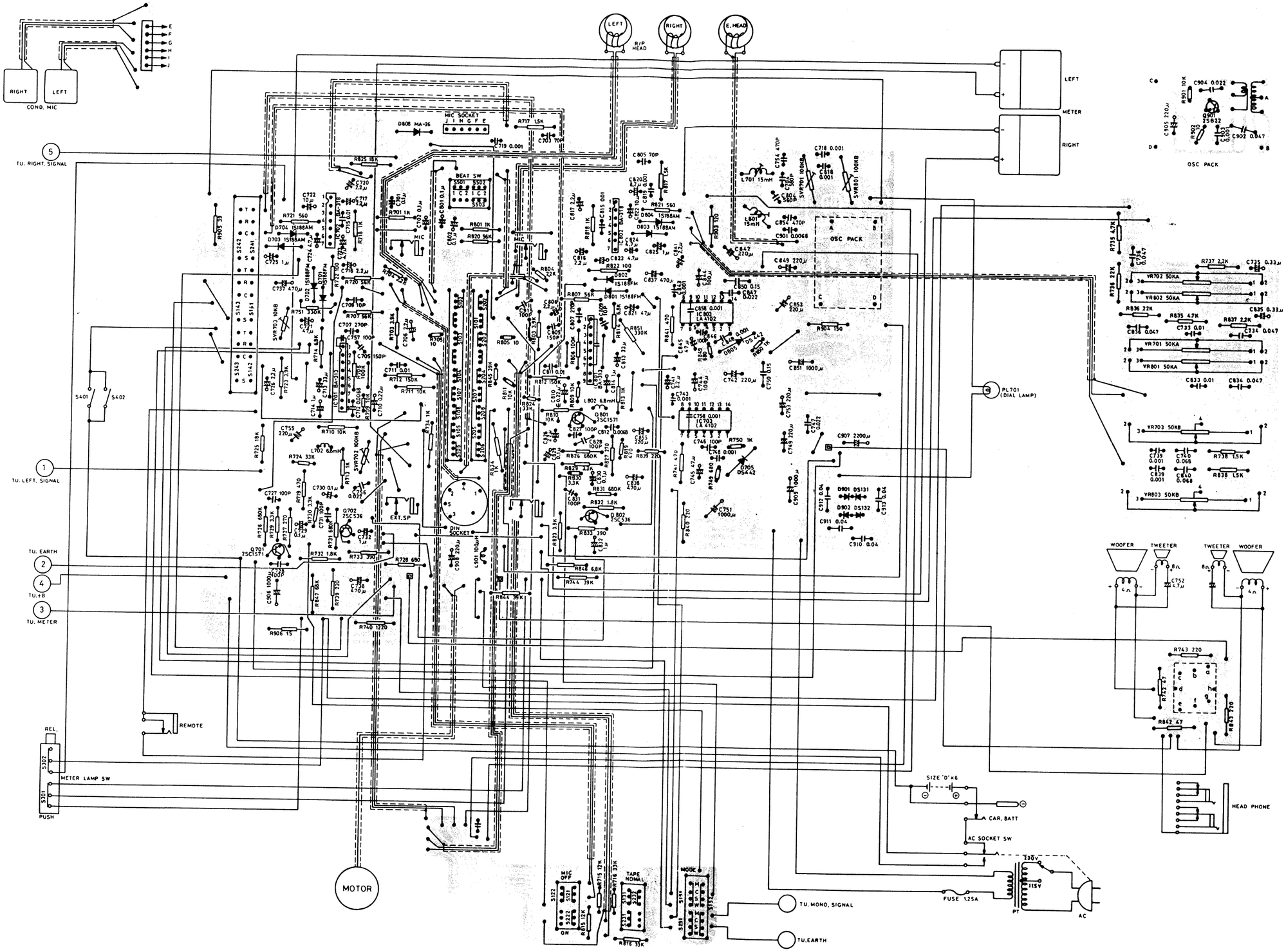

METER
-B
+B
RIGHT
LEFT
ROD. ANT.
EXT. ANT.
L110b
L110a
IC501 LA3301S
T501
T502
T301
T302
CF301
CF302
CT-1
CT-2
CT-3
CT-4
VC1-1
VC1-2
VC2-1
VC2-2
VCT1-1
VCT1-2
VCT2-1
VCT2-2
D501 SLP24B
SVR501 1K
2SC930D
2SC668D
IS188
IS188AM
DS442
JS553
MU-11T
YZ047A

SCHEMATIC DIAGRAM (AMP)



METER INDICATION			
		PLAY	REC
LICH	RADIO	TUNING	VU
	TAPE	VU	VU
RICH	RADIO	(PUSH)REL VU/BATT	VU
	TAPE	VU/BATT	

(S101 ~ S108, S201 ~ S208)	R/P SW (9/2)
(S121 ~ S122, S221 ~ S222)	BUILT IN MIC SW (4/2)
(S131 ~ S232)	TAPE SELECT SW (4/2)
(S141 ~ S143, S241 ~ S243)	RADIO / TAPE / SLEEP SW (6/3)
(S151 ~ S152, S251)	MODE SW (4/3)
S301 ~ S302	METER SW (2/2)
	LAMP SW
S401 ~ S402	POWER SW
S501 ~ S503	BEAT SW (4/2)


COND. MIC
RIGHT
LEFT
MIC SOCKET
J I H G F E
LEFT
RIGHT
E. HEAD
R/P HEAD
LEFT
METER
RIGHT
OSC PACK
TU. RIGHT. SIGNAL
TU. LEFT. SIGNAL
TU. EARTH
TU. +B
TU. METER
BEAT SW
DIN SOCKET
EXT.SP
REMOTE
REL.
METER LAMP SW
PUSH
MOTOR
PL701 (DIAL LAMP)
SIZE "D" ×6
CAR. BATT
AC SOCKET SW
FUSE 1.25A
PT
AC
TU. MONO. SIGNAL
TU.EARTH
WOOFER
TWEETER
TWEETER
WOOFER
HEAD PHONE
OSC PACK